Trend Study 10-27-05

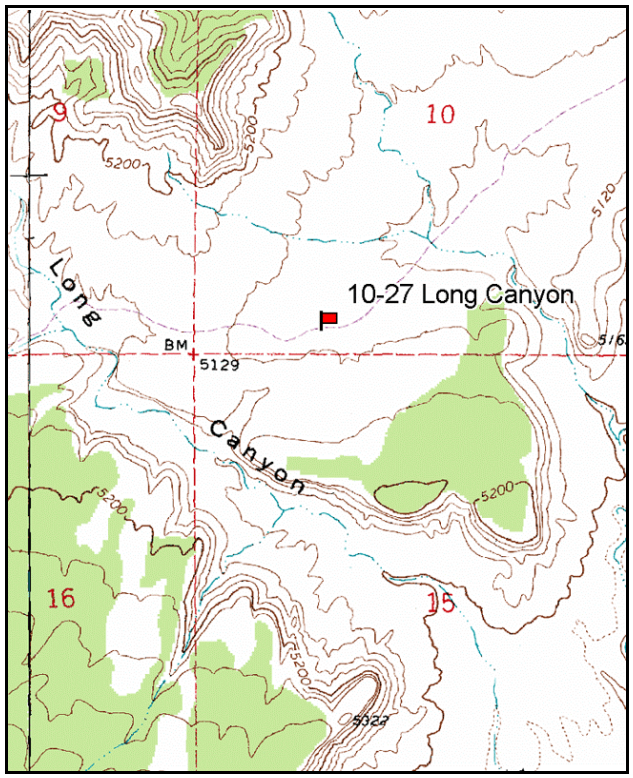
Study site name: Long Canyon . Vegetation type: Wyoming Big Sagebrush .

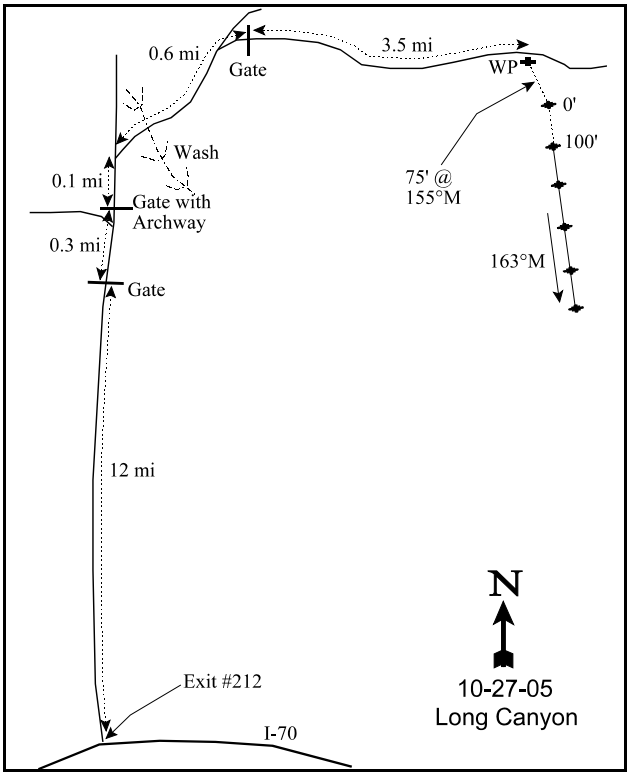
Compass bearing: frequency baseline 163 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

LOCATION DESCRIPTION

From I-70, take the east Cisco exit (exit #212). From the north side of the overpass travel 12 miles to a gate. Go through the gate and proceed 0.3 miles to a sheep ranch gate with an archway. Go through the gate and continue 0.1 miles to a fork. Turn right and drive 0.6 miles to a road on the right with a gate. Turn right (south) and drive along the bench 3.5 miles to the witness post on the right (south) side of the road. From the witness post walk 75 ft at 155 degrees magnetic to 0' stake. The 0' stake is marked with browse tag #147.





Map Name: Antone Canyon . Diagrammatic Sketch

Township 19S , Range 23E , Section 10 GPS: NAD 27, UTM 12S 4335832 N, 641348 E

DISCUSSION

Long Canyon - Trend Study No. 10-27

The Long Canyon trend study was established in 2005. It monitors the lowest bench of the Book Cliffs above the Cisco Desert at an elevation of 5,100 feet. Long Canyon is just above Cottonwood Wash. The bench slopes at about 4% to the northwest. The bench is dominated by Wyoming big sagebrush, surrounded by pinyon-juniper woodlands. This is considered an important deer winter range and is also used for sheep grazing in the BLM Cisco Mesa allotment. The west end of the bench near Cottonwood Wash, appeared to be a sheep bedding area and showed signs of heavy use. Pellet group data in 2005 was estimated at 33 deer days use/acre (81ddu/ha), 11 elk days use/acre (26 edu/ha), and 50 sheep days use/acre (124 sdu/ha). One deer carcass was found on the site.

The soil is a shallow loam with an estimated effective rooting depth of 13 inches. The soil reaction is neutral with a pH of 7.3. Soil phosphorus and potassium levels are sufficient for wildland soils (Tiedemann and Lopez 2004). Soil erosion appeared to be minimal in 2005. An erosion condition class assessment rated erosion as stable. The gentle slope and vegetation cover help prevent erosion. Some slight pedestaling was noted. The amount of bare soil was high at 46%.

Wyoming big sagebrush is the key browse species at this site. Sagebrush cover was 18% in 2005, while density was estimated at 3,700 plants/acre. Decadence was relatively low at 30%, with 17% of the population classified as dying. Six percent of the population was classified as young and seedlings were rare at 40/acre. Utilization was moderate to heavy with 43% classified as moderate and 50% as heavy. Sagebrush vigor at this site was much better than some of the other sites on the south end of the Book Cliffs. It appears that drought conditions prior to 2005 did not negatively effect this site as much as other sites in the area. Recruitment appears to be good despite high amounts of cheatgrass to compete with seedlings. Other palatable browse species sampled on the site include: fourwing saltbush, shadscale, winterfat, and spiny hopsage. Fourwing saltbush was heavily hedged in 2005. Black greasewood was also seen near the transect location.

The herbaceous understory was in poor condition in 2005. Cheatgrass was the most abundant herbaceous species in 2005. Cheatgrass cover was over 20% and was sampled in 97 of 100 quadrats. The dense cover fills the shrub interspaces and makes this site vulnerable to fire, which would eliminate the browse component. Sixweeks fescue was also very abundant in 2005 with nearly 9% cover. It was also sampled in 97% of the quadrats. Perennial grasses were infrequent. Six annual forbs were sampled and were much more abundant than perennial forbs.

2005 APPARENT TREND ASSESSMENT

The soil trend appears to be stable. When cheatgrass is less abundant due to dry conditions the soil may be more vulnerable to erosion, due to a lack of perennial understory species. The browse trend appears to be stable. Wyoming big sagebrush was in relatively good condition in 2005. Percent decadence was moderate and a few young plants were sampled. The herbaceous understory was in poor condition. Annual species dominate the site. Cheatgrass and sixweeks fescue were the most abundant grasses. The high amount of cheatgrass creates a fire hazard, which could completely change the browse component of the site. The Desirable Components Index rated this site as poor to fair due to excellent browse cover, but high annual grass cover and low perennial grass cover.

winter range condition (DC Index) - poor to fair (24) Lower potential scale

HERBACEOUS TRENDS --
Management unit 10 , Study no: 27

Type	Species	Nested Frequency '05	Average Cover % '05
G	Bromus tectorum (a)	395	20.31
G	Hilaria jamesii	3	.15
G	Oryzopsis hymenoides	11	.34
G	Sitanion hystrix	40	.68
G	Sporobolus cryptandrus	5	.06
G	Vulpia octoflora (a)	354	8.70
Total for Annual Grasses		749	29.02
Total for Perennial Grasses		59	1.23
Total for Grasses		808	30.25
F	Alyssum alyssoides (a)	61	.49
F	Cryptantha sp.	8	.16
F	Descurainia pinnata (a)	111	.86
F	Gilia sp. (a)	52	.26
F	Lappula occidentalis (a)	37	.26
F	Lepidium sp. (a)	5	.18
F	Mentzelia sp.	1	.00
F	Phlox longifolia	22	.08
F	Plantago patagonica (a)	61	.50
F	Sphaeralcea coccinea	23	.24
F	Townsendia incana	2	.00
Total for Annual Forbs		327	2.57
Total for Perennial Forbs		56	0.49
Total for Forbs		383	3.07

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Management unit 10 , Study no: 27

Type	Species	Strip Frequency '05	Average Cover % '05
B	Artemisia tridentata wyomingensis	81	17.76
B	Atriplex canescens	5	.15
B	Ceratoides lanata	1	-
B	Chrysothamnus viscidiflorus stenophyllus	4	-
B	Grayia spinosa	1	.15
B	Gutierrezia sarothrae	11	.18
B	Opuntia sp.	12	.91
Total for Browse		115	19.15

CANOPY COVER, LINE INTERCEPT --
Management unit 10 , Study no: 27

Species	Percent Cover '05
Artemisia tridentata wyomingensis	22.66
Atriplex canescens	1.14
Grayia spinosa	.10
Gutierrezia sarothrae	.56
Opuntia sp.	.91

KEY BROWSE ANNUAL LEADER GROWTH --
Management unit 10 , Study no: 27

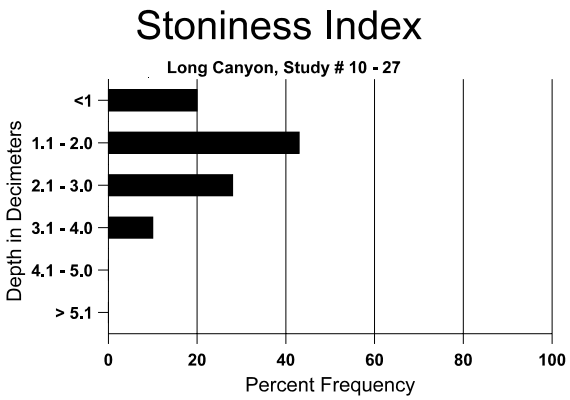
Species	Average leader growth (in) '05
Artemisia tridentata wyomingensis	1.9

BASIC COVER --
Management unit 10 , Study no: 27

Cover Type	Average Cover % '05
Vegetation	42.81
Rock	.38
Pavement	.56
Litter	17.82
Cryptogams	4.11
Bare Ground	46.40

SOIL ANALYSIS DATA --
Herd Unit 10, Study # 27, Study Name: Long Canyon

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	ppm P	ppm K	dS/m
12.7	55.0 (14.1)	7.3	47.7	33.7	18.6	1.0	9.7	182.4	0.6



PELLET GROUP DATA --
Management unit 10 , Study no: 27

Type	Quadrat Frequency '05	Days use per acre (ha) '05
Sheep	3	50 (124)
Rabbit	43	-
Elk	7	11 (26)
Deer	23	33 (81)
Antelope	3	-

BROWSE CHARACTERISTICS --
Management unit 10 , Study no: 27

		Age class distribution (plants per acre)					Utilization					
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
Artemisia tridentata wyomingensis												
05	**3700**	40	220	2380	1100	800	43	50	30	17	17	26/43
Atriplex canescens												
05	**120**	-	-	80	40	-	50	17	33	17	17	29/32
Atriplex confertifolia												
05	**0**	-	-	-	-	-	0	0	-	-	0	25/15
Ceratoides lanata												
05	**20**	-	-	20	-	-	0	100	-	-	0	18/14
Chrysothamnus viscidiflorus stenophyllus												
05	**80**	-	20	60	-	40	0	0	-	-	0	13/15
Grayia spinosa												
05	**40**	-	-	20	20	20	100	0	50	50	50	18/27
Gutierrezia sarothrae												
05	**280**	-	20	260	-	-	0	0	-	-	0	11/11
Opuntia sp.												
05	**460**	-	-	320	140	100	0	0	30	13	13	7/33
Sclerocactus sp.												
05	**0**	-	-	-	-	-	0	0	-	-	0	6/9